

intervening claims.

Claims 11-15 were noted as allowed.

II. SUMMARY OF APPLICANT'S RESPONSE:

Claim 1 has been amended to include additionally limitations that further distinguish Applicant's inventive structure over the references. To support inclusion of these additionally distinguishing recitations of structure in Claim 1, the application specification (page 7) and one drawing figure (FIG. 1) have been amended. No new matter was added.

Claims 2-7, as required by the revised regulations, are set as originally presented and remain dependent, directly or indirectly, on Claim 1.

As instructed by the Examiner, Claim 8 and been amended to place this claim in independent form and now includes all of the limitations of base Claim 1. There are no intervening claims.

Claims 9-10 remain dependent on Claim 8 and are set out as originally presented.

Allowed Claims 11-15 also are set out as originally filed except Claims 13 and 15 were amended to corrected several typo's.

Finally, a new Claim 16, dependent on Claim 12, is submitted.

As the application has been amended, one paragraph of page 7 of the specification, FIG. 1, Claims 1-7, 8, 13, and a new Claim 16 require Examiner's further consideration. Claims 1-7 now are believed to be in a form that clearly distinguishes Applicant's inventive duct over the references that are discussed below in detail.

III. EXAMINER CITED REFERENCES:

Reference A (Bailey)

U.S. Patent No. 5,107,398

A cooling system for a computer [10] is set out in this first cited reference and includes a fan unit [22] having an outlet [28] that connects with an inlet end [31] of a diffuser [30]. The diffuser [30], shown in details in FIGS. 6-8, includes a first expanding section defined by sidewalls [39, 41] that flare outward respectively on an angle of 5 degrees. A bottom wall [37] of the first section then flares downward on a 9 degree angle. Outer ends of the first expanding section top and bottom walls [35, 37] connect with a first and second arcuate-shaped top and bottom wall [43, 45] of a second divergent section of the diffuser [30]. These top and bottom walls [43, 45] of the second divergent section are connected by aligned sidewalls. An outlet end [32] of the second divergent section of the diffuser [30] is positioned to discharge a stream of air slanted downward on an angle of about 60 degrees from the stream of air received by the diffuser [30] from the fan unit [22]. Lastly, the outlet end [32] of the diffuser divergent section connects to a plenum chamber [34] attached to an inside of a sidewall of a housing [12] of the computer [10].

Reference B (Hatada et al.)

U.S. Patent No. 5,077,601

This second cited reference discloses a system for cooling an electronic device. The system shown in FIG. 1 includes a cooling duct divided into a first inlet section [1a] having an enlarged, uniform cross sectional area. An outlet end of the first section [1a] then connects with a second section having a downwardly tapering top wall [1b] that produces a progressively decreasing cross sectional area. The second section then connects with a third outlet section [1c]

having a reduced, uniform cross sectional area. Air [4] coming into the duct divides into a primary air flow component [5a] and an auxiliary air flow component [6a]. The air flow component [5a] initially flows through a first set of spaced apart fins [3a] positioned parallel to the air flow [5a]. These fins [3a] dissipate heat from a source [2a]. The auxiliary air flow [6a] recombines with the primary air component [5a] downstream from the first fin set [3a] in the second duct section. As recombined, the air then flows through a second set of fins [3b] dissipating heat from a second heat source [2b]. Significant turbulence is created as the air flow components [5a, 6a] recombine.

FIGS. 5-6, 9-11, 12-13, and 14-15 set out further duct configurations having progressively decreasing cross sectional areas between inlet and outlet ends and structure producing turbulent recombining air flows.

Reference C (Chen)
U.S. Patent No. 6,215,659

The third cited reference discloses a fan housing [28] for installation in an enclosure [4] of a personal computer [2]. As seen in FIGS 2-5, the housing [28] has a box-like shape. This housing [28] includes spaced apart sidewalls [32] partially connected by top and bottom walls [34, 36] and by an angularly positioned, inwardly offset end wall [38]. In the end wall [38] is a circular opening 50. Extending outward from the end wall [38] is a set of posts [52] for positioning an outlet side of a fan unit [6] next to the end wall opening [50]. This fan unit [6] is held in place by a pair of snaps [56] resiliently attached respectively to inner sides of the housing top and bottom wall [34, 36].

For use, the housing [28] is attached to an inside of a front panel [12] of the computer

enclosure [4] and there held in place by latches [44] and tabs [46] formed as part of a front edge [42] of the fan housing [28]. The fan unit [30] draws air into the computer enclosure [4] through openings [22] in the enclosure front panel [12]. Air discharging from the housing [28] flows over and cools a central processing unit [26], for example, of the computer [2].

Reference D (Viallet)
U.S. Patent No. 5,917,698

This last cited reference discloses a duct-fan unit for installation inside a housing [110] of a personal computer [100]. This duct unit includes a baffle member [140] having a U-shaped section that includes a first portion [140a] that connects to an air intake [120] of the computer housing [110]. An outlet end of the baffle member first portion [140a] then connects with an intake of a cooling fan [150] carried in an angularly positioned cradle structure [160]. The fan [150] is held in the cradle structure [160] by a resilient loop-shaped strap [165] having ends that fit respectively over hook portions [170] formed as part of the cradle structure [160]. The fan [150] discharges into a second portion [140b] of the duct to direct air from the fan [150] onto a heat sink [130] of a processor [125] of the computer [100]. A top of the unit is enclosed by a top cover [180] that serves as an electronic shield.

IV. PATENTABILITY:

A. THE CLAIMS:

Claim 1:

In support of rejecting Claim 1 as being obvious over Bailey in view of Hatada et al., Examiner set out a description of the duct structure disclosed in each reference. Assuming that

the accuracy of these descriptions is generally correct, Examiner somehow failed to recognize that Applicant's duct structure still is non obviously different. Applicant's duct has a narrow section. Referring to application FIG. 1, this narrow section is formed by the joinder of the narrow top end 32 of lower section 22 and the narrow bottom end 34 of upper section 34 of the duct 10. Neither reference teaches nor suggests a duct having a narrow section located between Applicant's enlarged intake opening 28 and large outlet opening 40. So that this important difference in structure is more finitely defined, Applicant amended Claim 1 to include reference to the comparative difference in cross sectional area of the intake opening 28 and outlet opening 40 with respect to the narrow top and bottom ends section 32, 34 of the duct 10. Like descriptive matter was added to the specification.

A still further difference is the shape of the interior passageway 42 and resulting flow path 44 (reference numbers added by this amendment) connecting the duct intake opening 22 and the outlet opening 40. Applicant's duct interior passageway 42 creates a flow path 44 having a shifting S-like shape. The duct of Bailey and Viallet have lazy L-like shaped inner passageways. The inner passageway of the duct of Hatrade at al. and Chen each has a linear shape. Claim 1 has been amended to include these further differences not taught or suggested by the references. The specification has been amended accordingly where the passageway in duct 10 is now identified by reference number 42 and resulting flow path by reference number 44. FIG. 1 is to be amended to include a reference number 42 and a broken arrow lines connected by a lead line to reference number 44. A copy of FIG. 1 has been enclosed with these additions noted in red.

Specifically identifying an interior passage 42 and a flow path 44 in the FIG. 1 and the specification is not new matter. Note that identically shaped duct 48 in application FIGS. 2-5 and

related descriptive matter in the specification include reference to an interior passageway 90.

Also Claim 1, as filed, makes reference an interior passageway. During use of the duct 10, this interior passageway 42 defines a flow path 44 for the air traveling therein.

In view of the addition of these further distinguishing structural recitations added to Claim 1, Applicant submits that Claim 1 is allowable.

As required by 37 CFR 1.121(c), the text of Claim 1, as amended, is set out separately and is attached to the LISTING of CLAIMS (Amendment, Page 12).

Claims 2-7:

Claim 2:

In rejecting Claim 2, Examiner states that FIG. 6 of Bailey discloses the centerline of one opening being laterally offset from a centerline of the other duct opening.

Applicant does not agree with Examiner's finding. The outlet [33] of the Bailey FIG. 6 duct is longitudinally, not laterally, offset from the inlet [31]. There is no sideways deflection.

Claim 3:

In rejecting Claim 3, Examiner states that Bailey discloses use of V-like shaped trim lines to reduce size of one of the openings.

Applicant's review of Bailey failed to find any discussion of trim lines or selective opening size reduction. Seemingly, Examiner had the same negative result since Examiner failed to support his finding by making reference to specific text or drawing figure of Bailey.

Claim 4:

In rejecting Claim 4, Examiner states that Chen discloses an air duct secured within a computer housing by means of at least one retaining clip [46]. Examiner's retaining clip [46] is identified by Chen as a tab [46]-see Chen FIGS. 2 and 3. This tab [46] of the fan unit [6] fits in a slot [18] in the computer enclosure [4].

As seen in Application FIGS. 1 and 5, Applicant's retaining clip 106 is a separate item that can be selectively located within the computer 98 for securing Applicant's ducts 10, 48.

Claim 5:

In rejecting Claim 5, Examiner states that Viallet teaches uses of a strap [165] mounted within a U-shaped flange.

As seen in Application FIGS. 1 and 5, Applicant's retaining strap 110 is a separate item having a U-shaped flanged end 112 and an opposite flanged outer end 114. The strap [165] of Viallet is nothing more than a rubber band and that rubber band does not teach Applicant's as claimed strap structure.

Claims 6, 7:

In rejecting Claims 6, 7, Examiner states that Bailey in view of Hatada et and Chen discloses a fan and duct structure for placement of this fan.

Applicant submits that Chen teaches use of locks [56] and posts [52] to hold a fan [30]. Applicant's fan placement structure is different. Applicant's fan securing structure, as set out in Claim 6, includes a pair of stop brackets and a pair of ribs. Note this same structure is recited in allowed Claim 15, dependent on allowed Claim 14 that then is dependent on allowed

independent Claim 12.

Summary-Claims 2-7:

Even if Examiner does not accept Applicant's arguments that rejection of Claims 2-7 is misplaced, Claims 2-7 are dependent on base Claim 1. Claim 1, as now amended, sets out structure that is clearly distinguishable over that taught by the four references. Therefore, dependent Claims 2-7 also should be allowable

As required by 37 CFR 1.121(c) the text of each of these pending claims is set out and attached the LISTING of CLAIMS.

Claim 8:

Examiner objected to Claim 8. As suggested by Examiner, Claim 8 has been rewritten in independent form and now includes all the limitations of base Claim 1. The text of Claim 8 as amended has been included with the LISTING of CLAIMS.

Claims 9-10

Claims 9, 10, objected to by Examiner, are dependent on now independent Claim 8. No changes have been made to Claims 9, 10; as such the text of Claims 9, 10 is set out in original form and included with the LISTING of CLAIMS.

Claims 11-14:

Claims 11-14 were allowed by Examiner. No change has been made to these claims; as such the text of these claims is set out in original form and included with the LISTING of CLAIMS.

Claim 15:

Applicant amended allowed Claim 15 to include a missing “comma” punctuation mark. The text of amended Claim 15 is set out and included with the LISTING of CLAIMS.

Claim 16:

A new Claim 16, dependent on allowed independent Claim 12 has been added. A Claim 16 was part of the “as filed” application, but Applicant inadvertently failed to note this last claim on the Application Transmittal Letter.

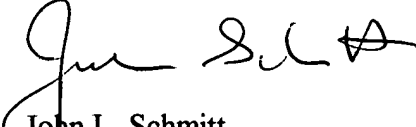
V. COMMERCIAL ACTIVITY:

Production of Applicant’s inventive duct just began. This duct is available for purchase on www.koolsolutions.net.

VI. SUMMARY:

In view of Applicant’s positive response to Examiner’s Action, the clarifying changes to the specification and one drawing figure, and the above discussion of the amendment to Claim 1 to distinguish Applicant’s invention over the references, Applicant believes that this application is in condition for allowance. Notice of such is earnestly solicited.

Respectfully submitted,


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